



WRIG

Field Crew Supervisor Report 2018

Hailey Blacquiere, Field Crew Supervisor



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## Introduction

The Wheatley River Improvement Group's (WRIG) 2018 summer season started on June 25<sup>th</sup>. This year's crew was a trio, consisting of myself Hailey Blacquiere, Madison Vincent and Taylor Gallant. I have happily taken the role of Supervisor this season with Madison as Riparian Health Technician and Taylor as the Field Crew Technician.

This is my second summer with WRIG and I am entering my final year at the University of Prince Edward Island, completing my bachelor's degree in wildlife conservation BWC. I am overseen by our manager Maggie McConnell. Madison has joined WRIG this year for the first time, she is entering her second year at UPEI as well, working towards a bachelors in environmental studies (BSc). Taylor Gallant joined WRIG again this year for his second summer too! He attends Bluefield High School and is going into grade 12 with a strong interest in the environment.

WRIG is a non-for-profit watershed group located out of Cymbria PEI, and manages four different watersheds within its boundary, Wheatley River, Hornes Creek, Chapel Creek and Lukes Creek.



Some of the accomplishments this season include the planting of 766 native tree and shrub species in different shoreline areas, removed fallen trees, building brush mats and alder thinning for the improvement of fish habitat and passage. Water quality monitoring was performed weekly to get a sense of the quality of the fish habitat in the watershed along with much more to be discussed in detail throughout this report.

## Tree Planting

**Table 1.** WRIG 2018 Tree and Shrub amount per species received from the provincial nursery.

<b>SHRUBS</b>	<b>EVERGREENS</b>	<b>DECIDUOUS</b>
Aronia prunifolia 99	Hemlock, Eastern 55	Birch, Yellow 30
Aronia melanocarpa 18	Cedar, Eastern 18	Maple, Red 12
Bayberry 8	Larch, Eastern 85	Oak, Red (plugs) 51
Birch, Bog 25	Pine, Red 25	
Dogwood, Red Osier 21	Pine, White 18	
Rose, Wild 35	Spruce, Black 25	
Spiraea latifolia 42	Spruce, Red 36	
Sweet Fern 25		
Sweet Gale 14		
Willow, Beaked 31		
Willow, Meadow 47		
Willow, Pussy 30		
Willow, Shining 16		

We planted at a total of 9 locations this year. The first property we planted was planted last year as well. Parcel 527986 is a shoreline property that has had substantial erosion over the past ten years and the owners have seen this happen and are working to with WRIG to try and combated the issue, as they have a large garden and enjoy kayaking in the bay without getting snagged on extra sediment. A total of 220 trees and shrubs were planted here.

The next location was a hedgerow located on parcel 1049710. This area is a developing farm field or to be pasture area for horses. Because of this we had to do some prior research of which plants are lethal to horses and which are not. In total we planted 96 trees at this location, all of which are okay if the horses ingest.

The third location we planted was another shoreline property. Parcel 726695 received 60 new bank stabilizing shrubs such as bayberry and rose as the home owner understands bank stabilization is important but also wants to keep the lovely view.

Parcel 237966 was where we planted two hedgerows. This area is becoming more popular and the home owner was looking to add some privacy as well as a break from the wind coming off the ocean. A mix of 62 trees and shrubs were planted in total.

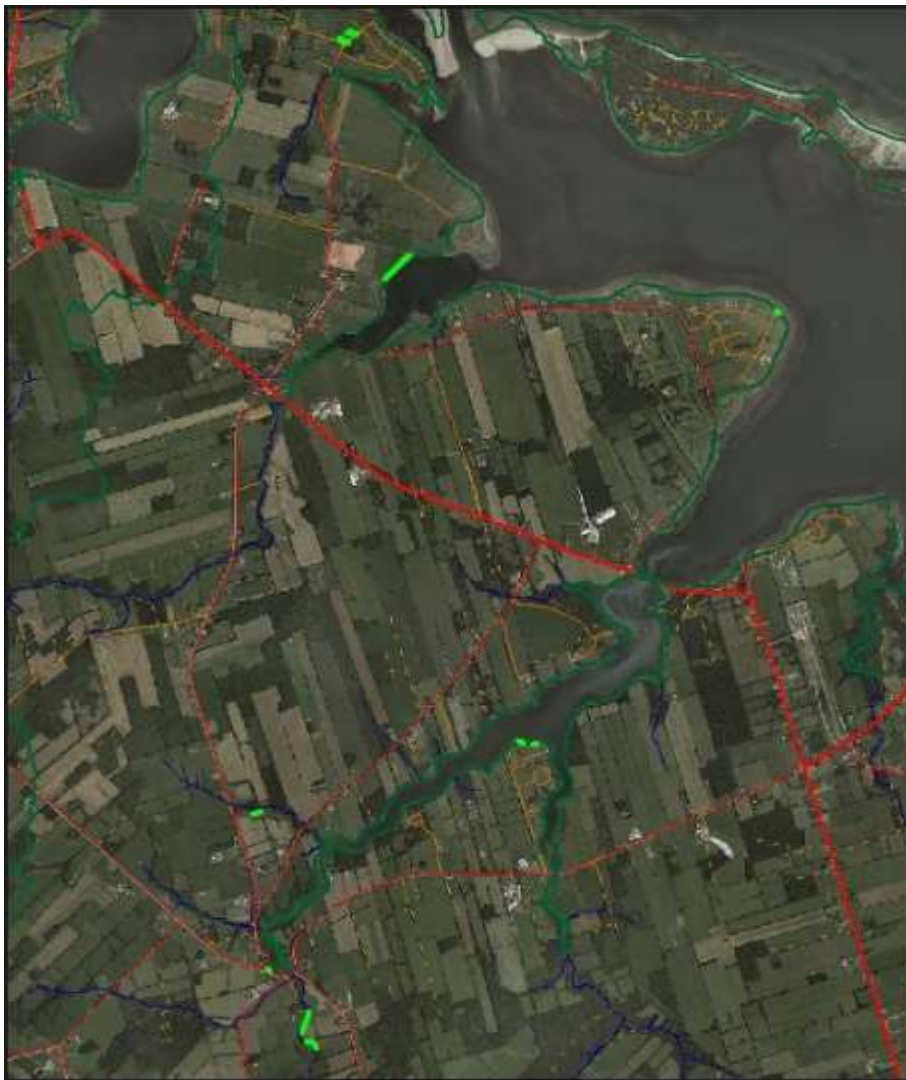


The next locations were adjacent to each other and the owner was very excited to have a hand in helping stabilize her riparian area and get a better water view. We planted a total of 24 shrubs on parcel 555334 and the neighbouring property, parcel 520742 gained 36 new shrubs.

The final location we planted was our favourite place! Rackham's pond. We made our way across the pond this year to take out a few alder patch cuts and replaced them with native species. We also planted in the long-grassed area directly across from the sitting area and along the trail people enjoy walking. A total of 110 trees!

Parcel 1025139 also received 12 trees to help provide shelter for wildlife and act as a wind break.

**Figure 1.** WRIG Tree Planting Locations for the 2018 Summer Season.



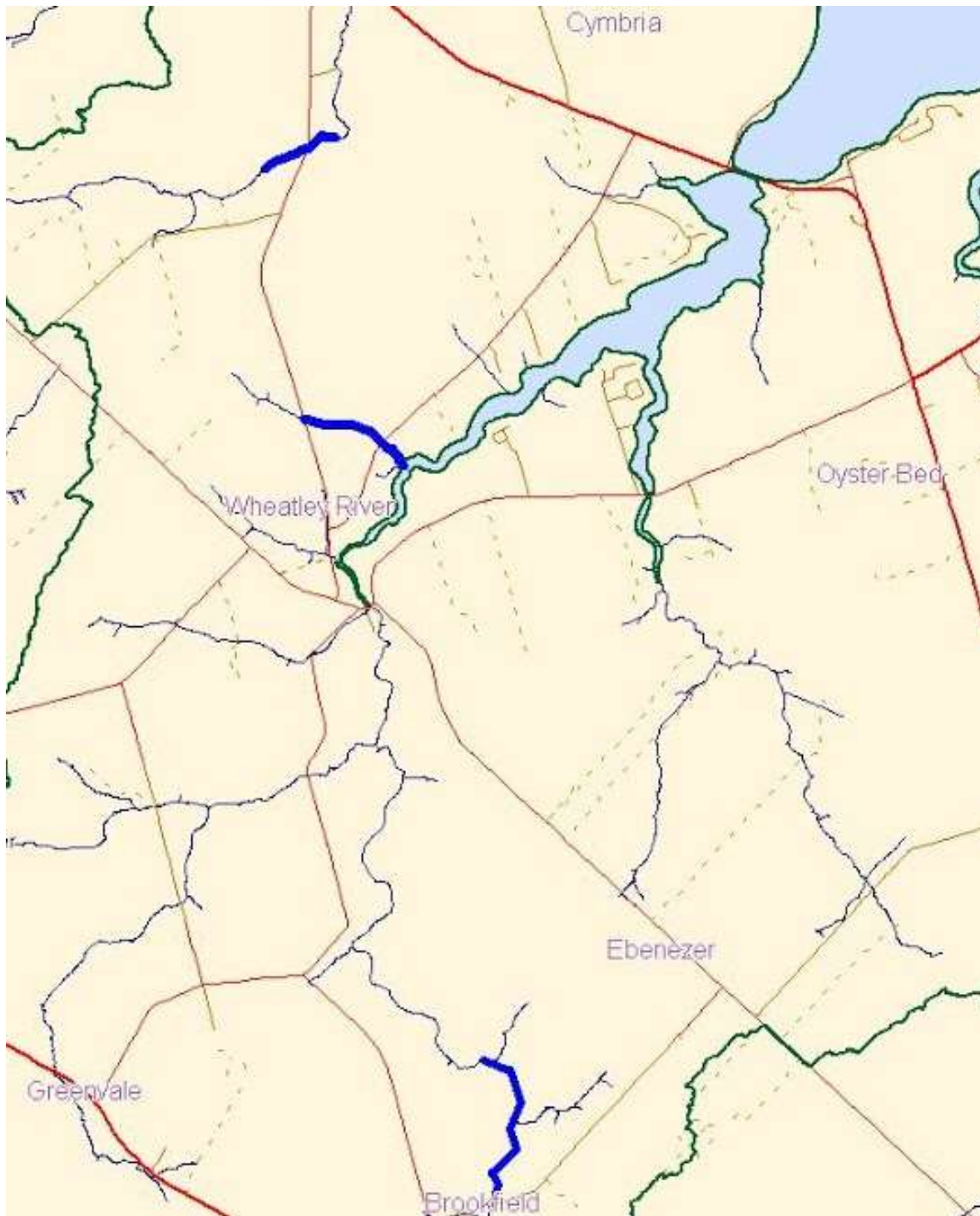
## Stream Restoration

This year we have cleared a total of 3 km of stream. Clearing streams allows for better waterflow, sediment catch and oxygenation. As well one we are highly concerned about, fish passage! Portions of 3 major systems were restored this year, shown in **Figure 2**. The largest portion starting at Art Ford Cross road and continues downstream towards the many basin of the Wheatley River for 1.3 kilometres. This section was the most time consuming, as there were many large blockages as shown in the photos below. We cleared a number of these blockages with loppers and a Japanese's handsaw, this takes a lot of effort, especially in the heat. We were very excited when Hunter Clyde Watershed came to give us a hand with some of the larger blockages with chainsaws! The effort was still at a high and with 4 extra sets of hands we got more done which was fabulous.

The second location was a portion of Ross Creek in preparation for a special project that we had go on a landowner's property. We cleared this creek from the church road, all the way down to the main basin of the Wheatley River. This section was much more narrow then wide with only a few moderate blockages, most was debris that caught on small sticks. The area also has a good buffer zone through most of the section and contains a few sections of meadow grasses bordering fields. The Stead road runs across this section and the water quality monitoring point WR2 is also in on this section.

The final section of stream cleared was on Chapel Creek. We began going up stream roughly 400m which was pretty quick clearing as it was mainly grasses and on the sides of the bank with a few sections of alders that had to be trimmed back. The water way was quite deep but the sub straight was mainly compacted sediment and in the pools softer sediment. This section also had a trail system put in by the property owners including a small crossing. Noticed earlier in the summer A fisherman was storing lobster traps in the stream, which is not acceptable, but we did not get a chance to chat with them and the traps were removed the day after we began clearing in this section. To finish off our required amount of clearing we cleared the down stream side roughly 230m. This area is packed with bittersweet night shade, as well as some stinging nettle and blackberries. Once roughly 150m off the road the area opened up to a much more wooded section with some alders and a few downed trees.

**Figure 2.** WRIG season 2018 stream cleared sections.





**Figures 3 and 4** show a before and after photo set of a large blockage that we cleared. A blockage of this size takes the crew roughly a 1-2 hours using hand tools such as loppers and a Japanese handsaw.

**Figure 3.** “Before” photo of a large blockage.



**Figure 4.** “After” photo of the blockage shown in Figure 3.



## Rackham's Pond

Rackham's pond is a community pond where WRIG takes responsibility for upkeep and overall productivity of the area. Weekly lawn maintenance was completed to provide better access for anglers and the public along with 3 additional projects, macroinvertebrate bioindicator sampling to get better insight on water quality, a depth survey and a tree plantation, previously mentioned above.

## Depth Survey

This year we reconducted a depth survey of Rackham's pond. This will allow us to see how much sediment is gathering in the pond over the time since it was last dredged out. To conduct this survey we measured out 20 meter sections on the side of the bank starting at the dock structure. This would mark the beginning of each transect. In total we had 9 transects. Going across the pond (following the transect) we took measurements at the 5 meters from the bank 10m, 15m, 20m and 25m at the widest point. Below is a diagram (**Figure 5**) and a table (**Table 2**) containing the results. This diagram is very rough as digitally imported line don't match the lands contours but the concept should be clear, 9 transects going to the far side of the pond and measurements at 5-25m going across or where the line interest.

**Figure 5.** Rackham's Pond depth survey model.



**Table 2.** Rackham's Pond depth survey results.

Lengths	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8	Transect 9
5m	1m25cm	59cm	35cm	44cm	66cm	54cm	67cm	75.5cm	69cm
10m	1m60cm	44.5cm	54.5cm	88.5cm	1m21cm	24cm	36.5cm	30.5cm	
15m	59cm	43cm	81.5cm				70.5cm	70.5cm	
20m	71cm	43.5cm							
25m	48.5cm								

## Macroinvertebrate Sampling

This project was a duplicate of last year's in hope to see in the health of these locations had improved. Although we had changed the areas slightly in regard to where the Hester Dendy's were located.

**Figure 6.** Macroinvertebrate sampling areas along Rackham's Pond on the Wheatley River. One Hester-Dendy sampler was placed in each of the locations shown.



Benthic macroinvertebrates serve an important role in overall health of aquatic ecosystems, providing food for many species living in that environment. They are widely used as biological indicators because they are found in nearly all freshwater environments. They are also easily collected, identified and the wide range of different taxa show varying degrees of sensitivity to pollutants. Different taxa of macroinvertebrates colonize different habitats of substrates. Rackham's pond is composed of two different substrates, hard and soft. Hard substrates are comprised mostly of cobble and hardbottom substances, and soft substrates are comprised of silt and sand bottom. It is important that the scope of the sampling encompasses both substrates present in the area. At Rackham's pond 3 different sampling sites were used, shown

in **Figure 6**, using a multi-plate Hester-Dendy sampler. Hester-Dendy's provide an opportunity for the invertebrates to colonize the sampler, and later be examined. The Hester-Dendy's were anchored to the bottom of the stream bed with rocks but not in direct contact with the substrate, with the plates parallel to water flow. The sampling took place for 3 weeks. Unfortunately we lost a Hester Dendy in the sediment at location 3 and were unable to locate it. Samplers 1 and 2 were both successful homes for the macroinvertebrates and in the following tables is a list of species found.

**Table 3.** Hester-dendy sample results.

<b>Hester-dendy sampler #</b>	<b>Substrate</b>	<b>Species found</b>
Sample number 1	Cobble, 6inches of water above	Mayfly, midge larva, caddisfly leech, watermites
Sample number 2	Sediment, open canopy 8 inches of water above	Nematode, flatworm midge larva, snail eggs
Sample number 3	Sediment, alder cover 6inches of water above	Lost

<b>SPECIES</b>	<b>TOLERANCE</b>
<b>MICRO CADDISFLY</b>	Moderate tolerance, abundant in streams with nutrient pollution, because to the increased algae growth on the surface of rocks. Occurring in dense patches in these environments.
<b>NORTHERN CASE MAKER CADDISFLY</b>	Largest group of caddisflies, with a very diverse level of tolerance.
<b>NON-BITING MIDGES</b>	Very diverse group with varying stress levels. An indication of poor water quality and some type of pollution. Bright red midges (which were present) thrive in nutrient polluted water with reduced dissolved oxygen levels.
<b>LEECH</b>	The presence of leeches does not indicate poor water quality or pollution. Living in lentic habitats or slow-moving water habitats.
<b>PLEUROCERID SNAIL</b>	Lotic-erosional habitat somewhat sensitive.
<b>COMMON BURROWER MAYFLIES</b>	Somewhat tolerant, populations increase with the moderate increase of nutrient levels. Sensitive to dissolved oxygen levels, about 1 ppm, and to chemicals that can be bound to sediment.
<b>PHYSID SNAIL</b>	Soft silty habitat, somewhat tolerant of pollution.
<b>SMALL MINNOW MAYFLIES</b>	Very tolerant to pollution, are found in waters with high nutrient concentrations, sedimentation and reduced dissolved oxygen.



## Water Quality Monitoring

Water quality monitoring was a weekly task that the crew performed on all the major tributaries in the Wheatley River watershed. WRIG shared a YSI water quality monitoring meter with the Hunter Clyde watershed group (HCWG). A total of 22 sites were monitored this year, as seen in **Figure 7** for temperature, dissolved oxygen, specific conductance, conductivity, total dissolved solids, salinity, pH and nitrates. The results collected from this sampling allow WRIG a better understanding of the quality of water and habitat in the watershed, which in turn equips us with better info which gives us better informed management decisions. All results from this monitoring can be seen in **Appendix A**.

We also conducted Riparian Health assessment along a large portion of the Wheatley river upper south branch, see results in **Appendix B**. These assessments allow us to make more informed decisions in how to help the area, for example if we should add more trees to help the buffer zone or if there are damaged crossings, as well as any other issues that could be fixed in the future.

**Figure 7.** Locations of all Water Quality Monitoring Sites across the Wheatley River Watershed.





## Canoe Anoxia Surveys

Once a month the crew canoed from the Wheatley river bridge to the Oyster Bed Bridge, along this stretch 8 points were monitored (**Figure 8**) for temperature, dissolved oxygen, specific conductance, conductivity, total dissolved solids, salinity, pH as well as the colour of the water, clarity, if there was any odour and the health of the sea lettuce. We had many extremely hot days this summer with 40+ degree weather, it was surprising that the sea lettuce although bad in the end of July into the first week of August was present, the intense smell did not seem too persist as long, as it had in previous years.

In addition to monthly qualitative surveys there is also an estuary watch program available to the community surrounding the estuary, where they receive a booklet from WRIG and observe and record the state of the estuary each day, either online or on paper. This program has been going on for the last couple years.

**Figure 8.** WRIG Canoe Anoxia survey locations.



## Water Crossing Assessments

Our last form of assessment was to check crossings. Well constructed and functioning crossings are a critical player in a watershed, if a crossing is blocked or damaged there are many issues such as fish not being able to pass, poor drainage and a risk of flooding an area. **Appendix C** has the results of Assessments taken in the 2018 field season.

## Collaborations

### Canada Day

Our annual tree give away in North Rustico was a hit! WRIG and HCWG team up every year to hold a booth of native trees to give away and be present in the community. We gave out a total of 110 trees. 22 Eastern Hemlock, 25 Eastern Larch, 12 Red Pine and 51 Red oak plugs.

### Beach clean up

Another great team up with Hunter Clyde's crew included a shore line/beach clean up. This kicked off our summer on the right note as we tidied the left side of the Barachois beach, avoiding the Piping plover habitat as well as a stretch along the Rustico bay estuary.

### Beach Hut

The beach hut was a huge collaboration! 4 organization HCWG, TREC, WRIG and Parks Canada were involved and ran an information booth every Friday from 1-4 on Cavendish beach. Each week the topic was different and each watershed rotated when they could pitch in. a great way to end off the week!

### Electrofishing

An exciting day of seeing what our work truly helps! Electrofishing was conducted on an upper reach of the Wheatley river above Rackham's pond. We were assisting the fish and wildlife division in monitoring the section to see what kinds of fish species were present. Our main findings included mainly brook trout, in a perfect ration of young of the year to adults. Unfortunately, we also had found a few rainbow trout, an invasive species. We will also have to stream clear the area next year prior to having the fish and wildlife come to monitor as there are some large downed tress that are difficult to electro fish around.

## Jack's Bridge

A very exciting project! Although we didn't help much with the large equipment and building we were excited watch as an old damaged culvert was converted into a beautiful and safe stream crossing, for the property owners and the ATVs that use the trail system. Not only does this crossing help in human transport but also our fish! The damaged culvert would have been terribly difficult to navigate. Now a lovely peddle bottom channel should allow excellent conditions for migrating fish. Pictured below is an astonishing before and after photo.

**Figure 9.** Jack's Bridge "before" and "after" photos.



## Community involvement

A major goal with working with a watershed is getting the public involved. When more people are talking about the environment the more conscious they are about how they treat the area they live in.

### Environmental Fun Day

This day is huge stepping stone for how our environment will be treated in the coming years. Getting youth involved and interested in the environment, how it works and what they can do to help gives them a sense of responsibility and wonder. On June 8<sup>th</sup> we invited students from Gulf Shore and Central Queens schools to join us at Rackham's pond to go through a day of outdoor, interactive environmental themed events and stations.

Each station had a different topic that the students would learn about, the stations included a song bird banding, tree ecology and forestry, electrofishing and water quality monitoring demonstration. Each station was taught by specialists in each area.

### Celebrate Our River Event

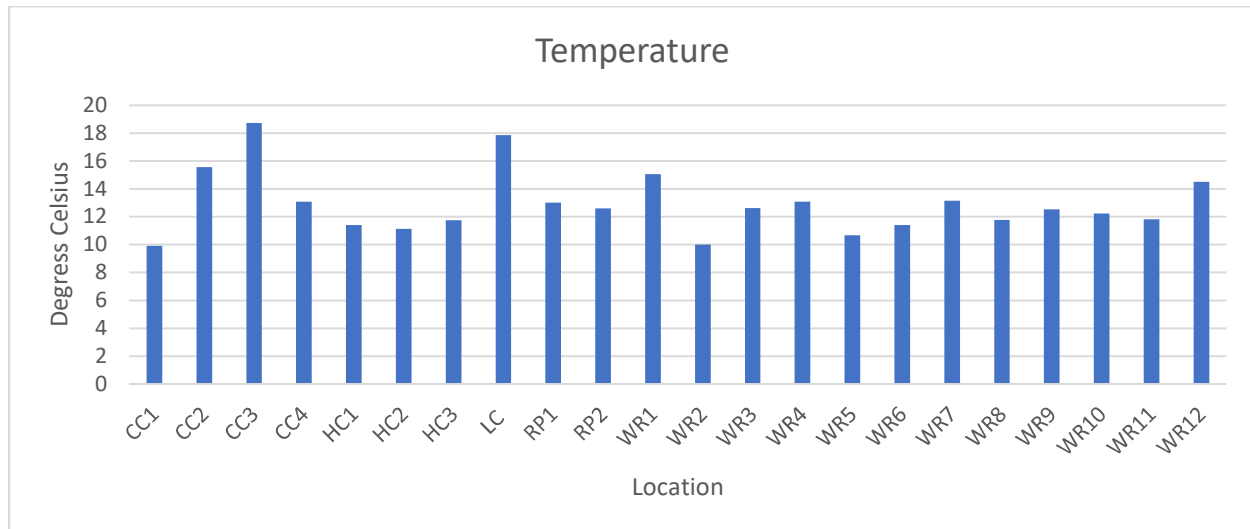
Our final celebration of summer! It comes surprisingly fast every year, this year we had yet another very successful duck race. A lovey BBQ lunch and corn boil kicked off the event and fueled everyone's excitement for the race. We shortened the length of the race to just around the peninsula rather than down to the bridge, this shortened the wait time greatly and the race only lasted roughly 5 mins. The excitement was great as the ducks sprinted to the finish line. The viewing areas worked great as people were scattered around all of them. We were also able to work out a few kinks with this set up so that the number of ducks that got by will not happen again next year. The best way to end the event was with a delicious ice-cream and bringing a tree home!



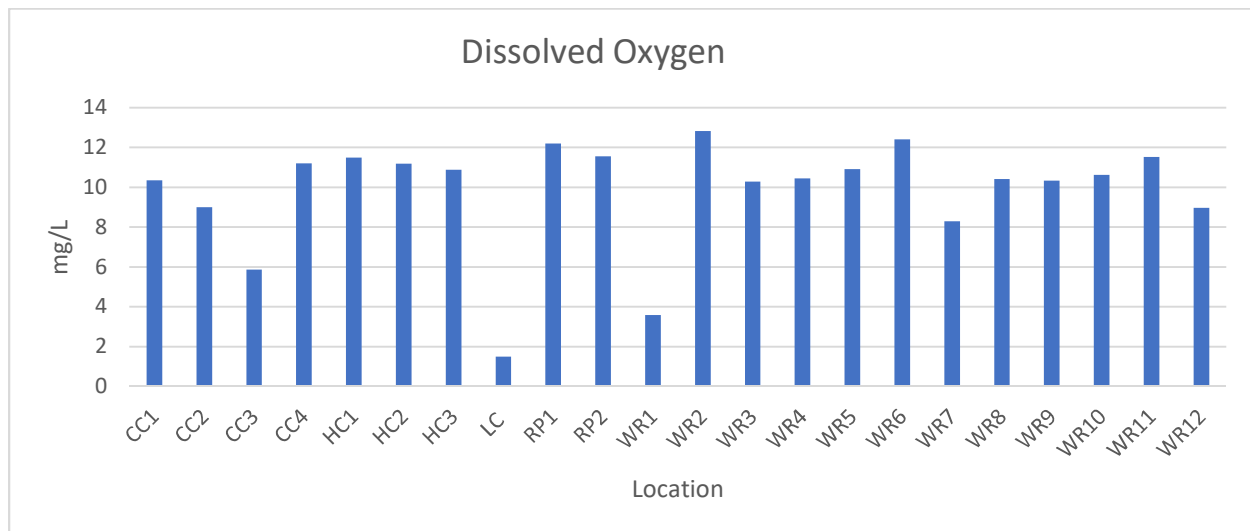


## APPENDIX A - Water Quality Monitoring Results for 2018

**Figure A-1: Average Temperature across All Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**

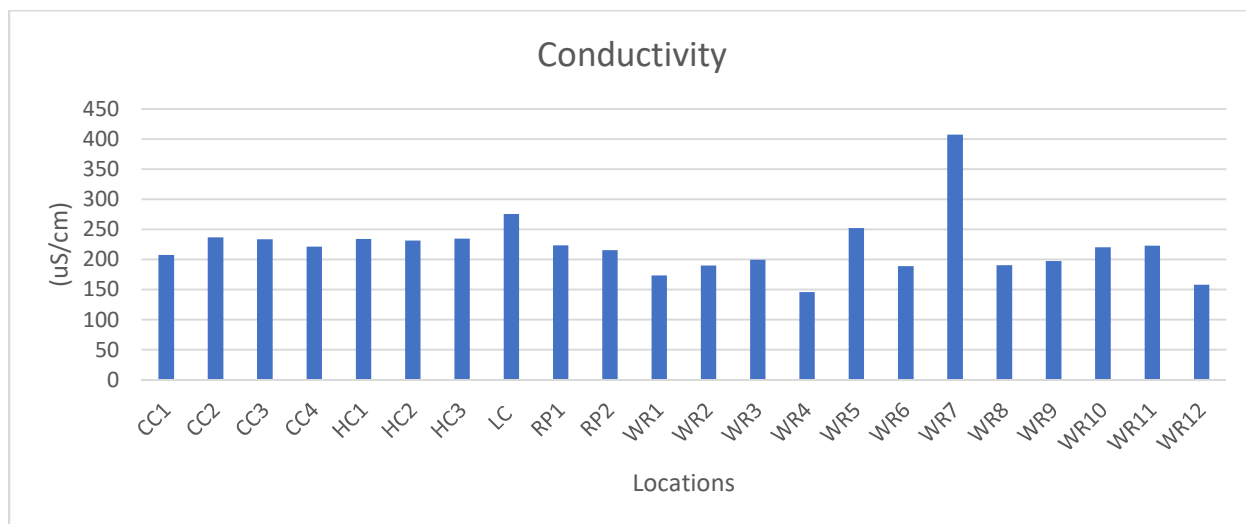


**Figure A- 2: Average Dissolved Oxygen (DO) across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**

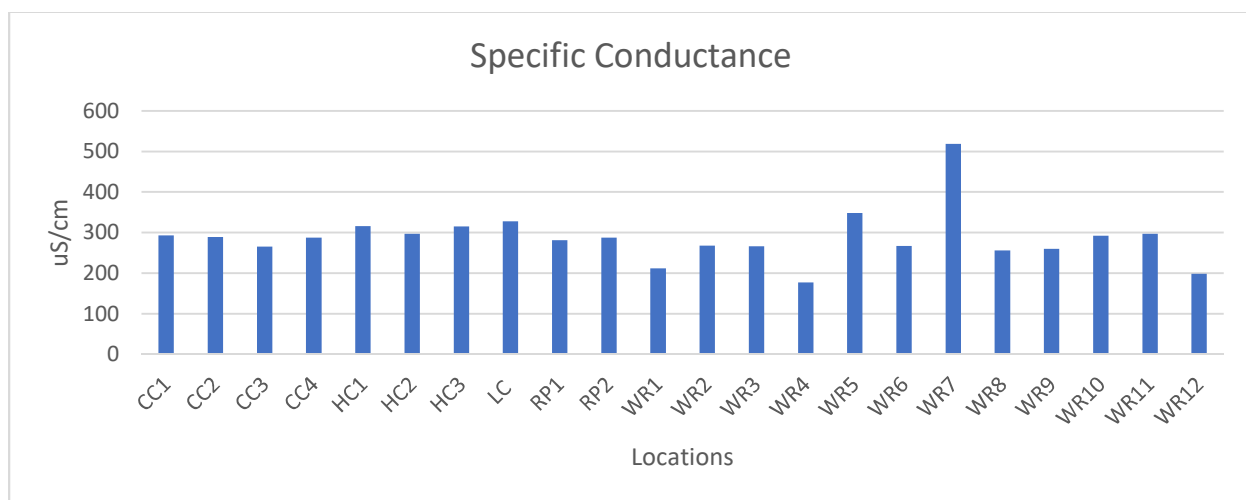




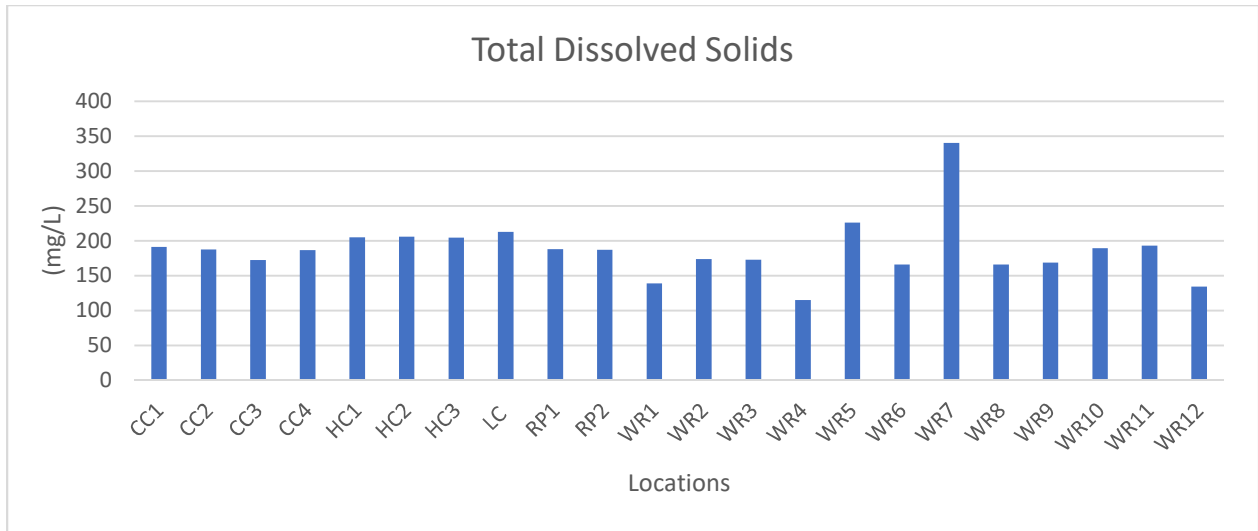
**Figure A- 3: Average Conductivity (C) across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



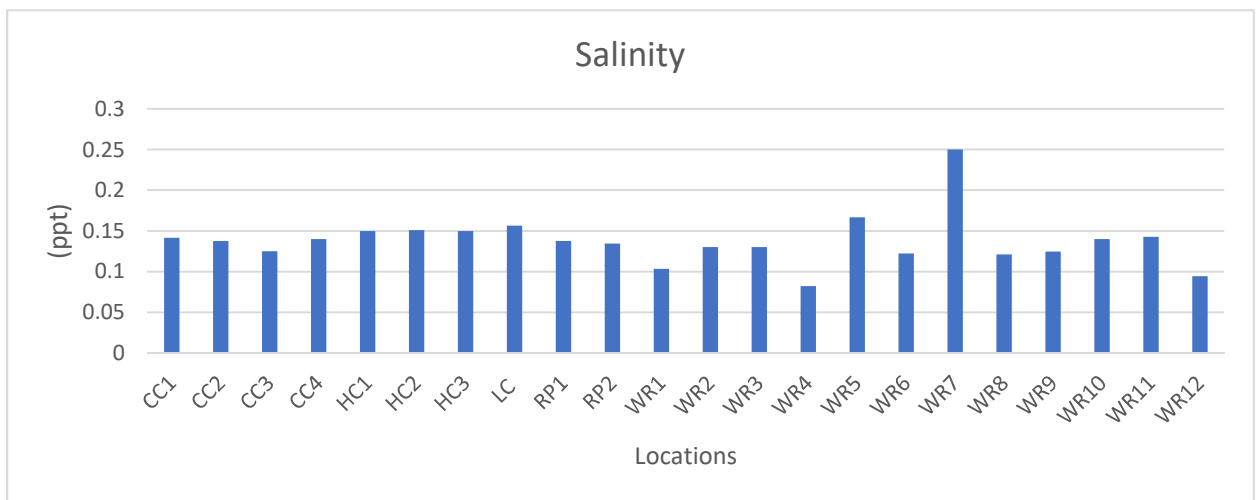
**Figure A- 4: Average Specific Conductance (SPC) across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



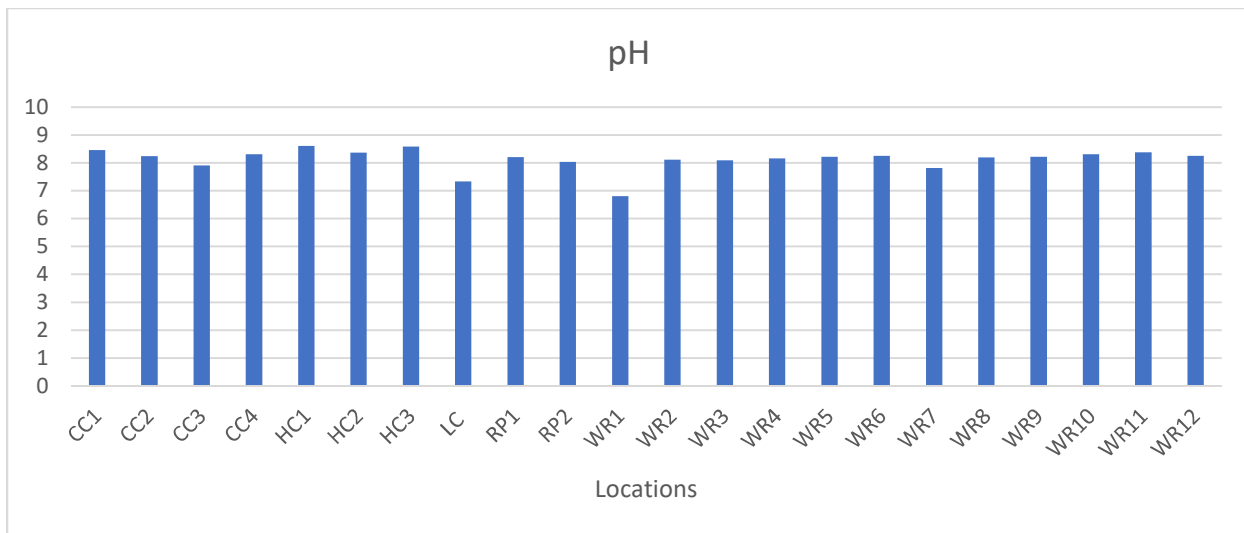
**Figure A- 5: Average Total Dissolved Solids (TDS) across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



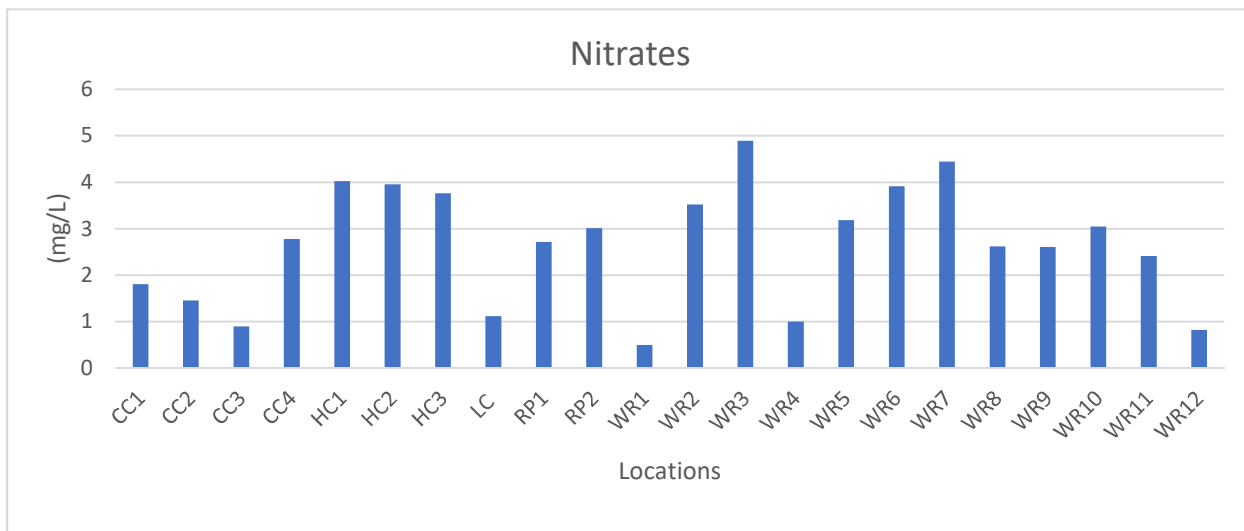
**Figure A- 6: Average Salinity across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



**Figure A- 7: Average pH across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



**Figure A- 8: Average Nitrate Levels (NO<sub>3</sub>-N) across all Water Quality Monitoring Sites in the Wheatley River Watershed. Data accumulated using YSI Sampling Meter.**



## APPENDIX B - Riparian Health Assessment Results for 2018

Year	Date	Station ID	Avg. Stream Width (m)	Avg. Water Depth (m)	Avg. Sediment Depth (m)	Q1	Q1 (%)	Q2a	Q2a (%)	Q2b	Q2b class	Q3	Q4	Q4 (%)	Q5	Q5 (%)	Q6	Q7	Q8	Q9	Q10	Q11	Q11 stage
2018	24-Jul-18	RHAT1	7.5	0.3	0.05	0	3	1	4	2	2	3	6	70	3	0	2	2	6	6	3	0	4a
2018	27-Jul-18	RHAT2	5.63	0.4	0.1	2	75	3	0	3	0	1	6	45	3	0	2	2	6	6	3	0	4a
2018	30-Jul-18	RHAT3	9	0.25	0.08	2	84	3	0	3	0	3	6	80	3	0	2	4	6	6	3	9	1b
2018	31-Jul-18	RHAT4	7.5	0.75	0.25	2	50	3	0	3	0	3	6	95	3	0	2	2	6	6	3	0	4a
2018	6-Aug-18	RHAT5	5	0.5	0.25	0	50	3	0	3	0	3	6	80	3	0	2	2	6	6	3	6	2
2018	13-Aug-18	RHAT6	7	0.75	0.125	6	100	3	0	3	0	3	6	40	3	0	2	4	6	6	3	6	2
2018	23-Aug-18	RHAT7	6.83	0.5	0.3	4	85	3	0	3	0	3	6	80	3	0	2	4	6	6	3	6	2

Year	Date	Station ID	Q12 (m)	Q20	Q21a	Q21b	Q21c	Q21d length (m)	Q21d velocity (m/s)	Q21e velocity (m/s)	Crossing WP#	Q22	Q23	Q24	Fish
2018	24-Jul-18	RHAT1	20	6	4	4	2	11.1	0.25	0.25	WQMWR9	6	4	1	Small Brook Trout
2018	27-Jul-18	RHAT2	45	6								6	2	3	Small Brook Trout
2018	30-Jul-18	RHAT3	35	6								6	2	3	Small Brook Trout
2018	31-Jul-18	RHAT4	35	6								6	2	3	Small Brook Trout
2018	6-Aug-18	RHAT5	45	6								6	4	3	Small Brook Trout
2018	13-Aug-18	RHAT6	90	6								6	2	3	Small Brook Trout
2018	23-Aug-18	RHAT7	40	6								6	2	3	small brook trout, few larger in pool

## APPENDIX C - Water Crossing Assessment Results for 2018

		CROSSING								
Location	Date	Crossing type	Length	Diameter	Slope	Fill	Rustline	Depth from Road	Armor	Beaver leveler
Lukes Creek	16-07-2018	CMP	19m	1m22cm	>5%	50%	80%	15 cm	No	No
WQM WR1	16-07-2018	CMP	31m10cm	1m10cm	0	2%	65%	~ 3m	No	No
WQM WR2	16-07-2018	OTH	27m81cm	1m 48cm	0	25%	35%	4m	Yes	no
WQM WR4	16-07-2018	CMP	13m87cm	1m	0	10%	30%	~2m	no	no
WQM WR5	16-07-2018	BOX	19m71cm	2m25cm	0	10%		~3m	yes	no
WQM WR6	16-07-2018	OTH	39m	2m70cm	0	5%	no	~3m	yes	no
WQM WR7	16-07-2018	OTH	highway	1m	0	5%	10%	~4m	yes	no
WQM WR8	16-07-2018	Bridge	10m	10m	0	20%			yes	no
WQM WR9	16-07-2018	2 -Box and CPP	11m10cm	1m 67cm	0	15%	35%	0.5m	yes	no
WQM WR10	16-07-2018	Bridge	6m 16cm		0	<5%	no		no	no
WQM WR11	16-07-2018	Box		3m54cm	0	5%	10%	6inches	yes	no
WQM WR12	16-07-2018	CMP	25m	1m	0	5%	30%	1.5m	yes	no
WR Bridge	16-07-2018	Bridge	12m 20cm		0	50%	60%	4m10cm	no	no
CC Bridge	16-07-2018	Bridge	4.72m		0	45%	70%	2m	yes	no
CC 2	16-07-2018	Box	7.48m	2m	0	5%	10%	0.75m	no	no
HC 2	16-07-2018	OTH	26m2cm	5.65m	0	15%	20%	1.5m	yes	no
Oysterbed B	16-07-2018	Bridge	10m9cm	34m	0	5%	15%		no	no
WCI 1	18-07-2018	CMP	25.3	1m60cm	0	20%	40%	2.5	yes	no
WCI 2	18-07-2018	Box	20.6	2m10cm	0	50%	70%	2m	no	no
WCI 3	18-07-2018	CPP		1m	0	0	0	1.5m	no	no
WCI 4	18-07-2018	CMP	18m70cm	70cm	0	0	15%	1.5m	no	no
WCI 5	18-07-2018	box		1m70	0	10%	15%	7m	yes	no
WCI 6	18-07-2018	CPP	23m30cm	1m16cm	0	0	10%	4m	no	no
WCI 7	18-07-2018	CMP	18m40cm	86cm	0	0	0	6 inch	no	no
WCI 8	18-07-2018	CMP	25m70cm	2m45cm	0	10%	15%	2m	yes	no



		DAMAGE					
Location	Date	Crushed	Obstruction	Undercut	Overtopped	Hanging	Hanging distance
Lukes Creek	16-07-2018	No	No	No	No	No	
WQM WR1	16-07-2018	No	No	No	No	No	
WQM WR2	16-07-2018	no	no	little bit	no	no	
WQM WR4	16-07-2018	no	yes	no	no	yes	2 feet
WQM WR5	16-07-2018	no	large block	no	no	yes	8 inches
WQM WR6	16-07-2018	no	no	no	no	no	
WQM WR7	16-07-2018	no	no	no	no	yes	12 inches
WQM WR8	16-07-2018						
WQM WR9	16-07-2018	yes 15%	no	no	no	yes	6inch
WQM WR10	16-07-2018						
WQM WR11	16-07-2018	no	yes	no	no	yes	12inches
WQM WR12	16-07-2018	yes 2%	no	no	no	yes	6 inches
WR Bridge	16-07-2018						
CC Bridge	16-07-2018						
CC 2	16-07-2018	no	yes	no	no	no	
HC 2	16-07-2018	no	no	no	no	no	
Oysterbed B	16-07-2018						
WCI 1	18-07-2018	no	no	no	no	no	
WCI 2	18-07-2018	no	no	no	no	no	
WCI 3	18-07-2018	no	no	no	no	no	
WCI 4	18-07-2018	no	no	no	no	no	
WCI 5	18-07-2018	no	no	no	no	no	
WCI 6	18-07-2018	no	no	no	no	yes	1.5 foot
WCI 7	18-07-2018	no	no	no	no	no	
WCI 8	18-07-2018	no	yes	no	no	yes	5 inch

		ROAD				BRIDGE				
Location	Date	Type	Condition	Width	Issue	Span Length	Span Width	Height	Surface	Bank Measurement
Lukes Creek	16-07-2018	PV	WM	7m 10CM						
WQM WR1	16-07-2018	PV	WM	6m 80cm	RT					
WQM WR2	16-07-2018	PV	WM	6M 09CM	RT					
WQM WR4	16-07-2018	SF	WM	5m 07cm						
WQM WR5	16-07-2018	SF	WM	5m65cm	RT					
WQM WR6	16-07-2018	PV	WM	39m						
WQM WR7	16-07-2018	PV	WM	highway						
WQM WR8	16-07-2018	PV	WM	8m20cm	RT	5m58cm	10m	2m50cm	GD	B1- 1m30cm B2 1m45cm
WQM WR9	16-07-2018	SF	WM	4m85cm						
WQM WR10	16-07-2018	SF	PM			10m72cm	7m60cm	4m54cm	PR	
WQM WR11	16-07-2018	MF	WM	10m30cm						
WQM WR12	16-07-2018	PV	WM	8m 10cm						
WR Bridge	16-07-2018	PV	WM		RT	9m70cm	12m20cm	4m10cm		
CC Bridge	16-07-2018	Pv	WM	6m63cm	RT	14.42m	5m	1m	GD	B1- 2.5 B2-2.5m
CC 2	16-07-2018	SF	WM	4m30cm						
HC 2	16-07-2018	PV	WM	8m15cm						
Oysterbed B	16-07-2018	PV	WM	10m9cm	RT	24m	10m9cm	8m	GD	B1-17m B2-17m
WCI 1	18-07-2018	PV	WM	6m40cm	RT					
WCI 2	18-07-2018	PV	WM	6m40cm	RT					
WCI 3	18-07-2018	PV	WM	6m80cm	RT					
WCI 4	18-07-2018	PV	Wm	11m	RT					
WCI 5	18-07-2018	PV	WM	6m50cm	RT					
WCI 6	18-07-2018	PV	WM							
WCI 7	18-07-2018	MF	WM	11m	RT					
WCI 8	18-07-2018	PV	WM	6m80cm						